

DETAILED ACTION

Drawings

1. The drawings are objected to because:

In Figures 1-3, the drawings should merely be labeled - - Figure 1- - . . . -Figure 3- -. The title and/or description of the Figures should be omitted from the drawings themselves as the description of the drawings is provided in the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-8 and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,985,769 to Jordan (hereinafter “Jordan”).

In reference to claims 1-3, 6 and 12-14:

Jordan teaches a method and system for automated real time interpretation of brain waves in an acute brain injury of a patient (Abstract of Jordan).

Electroencephalographic signals are measured from the patient, at two time points (Col. 3, lines 5-34 and Col. 6, lines 14-17 of Jordan). The acquired data is processed and transformed into frequency components (Col. 2, lines 34-50 of Jordan), such as delta band power. The clinical status of the patient is predicted, such as stroke or cerebral ischemia (Col. 6, lines 25-42 of Jordan) from the change in the delta band power measure between the two time-points (Col. 6, lines 25-35 and Col. 7, lines 13-27 of Jordan). The EEG measures are obtained at the scene of the injury which is during an acute phase of the stroke (Col. 2, lines 1-23 of Jordan).

In reference to claims 4 and 5:

The power measure is a power spectrum over a frequency range, which is obtained by a Fast Fourier Transform of artifact-free portions of the acquired EEG data (Col. 5, lines 8-16 and lines 49-67 and Col. 6, lines 1-10 of Jordan).

In reference to claim 7:

The EEG data is acquired from a plurality of electrodes distributed evenly on a portion of the scalp of the patient overlying the stroke (Col. 3, lines 8-18 of Jordan).

In reference to claims 8 and 15:

The central processing unit (16 of Jordan) processes the acquired data and performs a comparison and classification in order to predict the outcome of a brain injury (Col. 3, lines 35-68 of Jordan).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan in view of US 5,445,162 to Ives (hereinafter "Ives").

In reference to claim 9:

Jordan teaches all of the claim limitations; see the rejection of claim 1 above.

However, Jordan fails to teach that:

MRI data is obtained from the same patient at the same time as the EEG data.

Ives teaches:

An apparatus and method for recording an EEG during MRI (Abstract of Ives). The EEG machine permits the recording of specific brain wave patterns in a patient and the MRI machine can provide metabolic and anatomical information regarding a portion of a patient, including a portion of the patient's brain suffering an injury such as a stroke (Col. 1, lines 14-18 of Ives).

Therefore it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to have recorded an EEG pattern at the same time that MRI is conducted, similar to the teachings of Ives, in the automated real time interpretation of brain waves of Jordan in order to obtain metabolic and anatomical information that is correlated to particular neurophysiological waveforms being studied. By obtaining such

a correlation, it would be possible to obtain increased information regarding abnormal as well as normal brain activity and to obtain a better understanding of the functioning of the brain (Col. 1, lines 19-26 of Ives).

Allowable Subject Matter

6. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance: No prior art of record teaches a method for predicting functional outcome of a stroke, by acquiring EEG data within an acute phase of the stroke where two delta band powers are measured at two different time-points, and subtracted from each other, and the difference will be divided by the elapsed time between the two time-points in order to calculate the slope of a line constituting the cross-temporal change in the delta power; the resulting value of the slope will then be converted in to a quotient of the first power measure; and based on this value the outcome of stroke will be predicted.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,269,315 to Leuchter et al discloses a system for determining brain lesions using EEG. US 6,223,074 to Granger discloses a method and apparatus for assessing neurological conditions using ERP. US 6,343,229 to Siebler et al discloses a device for measuring and analysis of both cerebral hemisphere. US 6,466,816 to Granger et al discloses a method for assessing susceptibility to stroke. US 6,493,577 to Williams discloses a method for detecting white matter neural injury and predicitcating neurological outcome. US 2004/0106864 to Rose et al discloses a method for predicitcating stroke evolution utilizing MRI. US 7,024,238 to Bergethon discloses a method for detecting ischemia.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita Saidi whose telephone number is (571)270-3001. The examiner can normally be reached on Monday-Friday 9:30 am - 6:00 pm Est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor, II can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles A. Marmor, II/
Supervisory Patent Examiner
Art Unit 3735

/A. S./
Examiner, Art Unit 3735
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